

SEMIS SHORT COURSE

SEED QUALITY ASSURANCE

GERMINATION TEST

Warm germination tests are used for labeling purposes and give a reasonable idea of field emergence under favorable conditions. A minimum of 400 seeds is required for an AOSA, NSHS, or ISTA official test. Tests can be conducted in rolled brown paper towels (8 reps of 50 seeds), on blue blotter paper, on crepe cellulose paper and on crepe cellulose paper covered with sand. At the end of this period the seedlings are categorized as normal, abnormal, or diseased, and dead or hard seeds. The percentage germination is calculated from the number of normal seedlings from the total number of seeds evaluated.

Requirements for germination test

- Certified and uncertified seeds of maize and bean
- Plastic sandwich boxes with lids
- Absorbent paper towel (kitchen rolls)
- Felt pens
- Paper labels
- Forceps
- Distilled water
- Hand sprayer (to apply water on to paper towels)
- Rubber bands
- Autoclave sterilized river sand

Between wet paper towel

1. Place 3 layers of folded absorbent paper towel in the sandwich boxes; wet the towels thoroughly and tilt the tray up on one end so that excess water runs off the tray.
2. Select a random sample of 100 seeds from the seed lot; count 50 seeds and evenly place on the towel (10 rows of 5 seeds each or 5 rows of 10 seeds each depending of the size of the box).
3. Place 2 layers of wet paper towel above the seeds.
4. Carefully place the lids to prevent drying out and place the boxes at 25°C near diffused light (may place near windows) for 5 to 7 days.
5. After five to seven days, open the boxes and count the number of germinated seed with intact tap roots and shoots. Do not count mouldy seed or diseased seedlings. Testing 400 seeds in this way will give a good indication of the germination percentage.

NB: For each crop variety (maize and bean), prepare at least 15 boxes of uncertified seed and 15 boxes of certified seed (at least 30 boxes for maize and 30 boxes for

In rolled paper towel

1. Wet 3 layers of kitchen paper towel using distilled water.
2. Select a random sample of seed and evenly place 100 seeds on the wetted paper towel (10 rows of 10 seeds each).
3. Place 2 layers of wet paper towel over the seeds, pressing the edges to seal them.
4. Gently roll up the paper towel, making sure the seeds do not drop out. Rolling facilitates handling and helps keep the towel from drying out.
5. One end of the roll is tied with rubber band and the rolls are placed in polyethylene paper bags (rubber band tied side down) – place 6 rolls in each paper bag. The bags are sealed to prevent drying and placed near a window such that the rolls are upright with rubber held side down.
6. After about 5 to 7 days, the rolls are removed, unrolled completely uncovering the germinating seedlings.
7. Ungerminated seeds and germinated seedlings are separated and counted to calculate the germination percentage.

NB: For each crop variety (maize and bean), prepare at least 30 rolls of uncertified seed and 30 rolls of certified seed (at least 60 roll for maize and 60 rolls for bean)

On sand - Duration typically 7-10 days

1. Autoclave-sterilize wet river sand and allow the sand to cool for 2 to 3 days.
2. In each plastic tray evenly spread about 1cm layer of sand and select a random sample of 100 seeds – arrange the 100 seeds in 10 rows of 10 seeds each on the sand.
3. Apply 1 cm layer of sand above the seeds
4. Place the trays in a warm (25°C) place – near a window and water as required.
5. After 7 to 10 days record germination - count the normal seedlings, abnormal seedling and dead seeds were counted separately and expressed in percentage.

NB: For each crop variety (maize and bean), prepare at least 15 trays of uncertified seed and 15 trays of certified seed (at least 30 trays for maize and 30 trays for bean).